L 17820-63 BDS

ACCESSION NR: AP3005675 S/0146/63/006/004/0019/0029

AUTHOR: Leytman, M. B.

TITLE: Transformer-type pulsed frequency meter

SOURCE: IVUZ, Priborostroyeniye, v. 6, no. 4, 1963, 19-29

TOPIC TAGS: frequency meter, pulsed frequency meter

ABSTRACT: A new frequency meter is described which is actually a transistorized triggering device with a transformer-type positive feedback. A 50 NP alloy having a nearly rectangular hysteresis loop is used for the transformer core. As the average value of the output voltage is proportional to the frequency being measured and almost independent of the supply voltage, only a very coarse voltage stabilizer is sufficient to ensure high accuracy. The theory involved is given in detail, as well as practical design procedure of the instrument. The testing of an experimental model designed for a maximum frequency of 80 cps

Card 1/2

L 17820-63

ACCESSION NR: AP3005675

revealed a strictly linear output characteristic and a relative error of 0.5% or less for temperature variation within 20-45 C; providing a thermistor-type correction reduced this error to 0.1%. Orig. art. has: 4 figures and 30 formulas.

ASSOCIATION: Azerbaydzhanskiy institut nefti i khimii im. M. Azizbekova (Azerbaijan Institute of Petroleum and Chemistry)

SUBMITTED: 20Oct62	DATE ACQ: 06Sep63	ENCL: 00
SUB CODE: EE	NO REF SOV: 004	OTHER: 000

Card 2/2

LEYTMAN, M.B.

Multichannel digital counting device. Izv.vys.ucheb.zav.; prib. 6 no.6:29-36 '63. (MIRA 17:3)

1. Azerbaydzhanskiy institut nefti i khimii imeni Azizbekova. Rekomendovana kafedroy elektricheskikh izmereniy i vychislitel'noy tekhniki.

L 17916-63
ACCESSION NR: AP3006226 S/0144/63/000/008/0982/0989

45

AUTHOR: Leytman, M. B.

TITLE: Semiconductor voltage stabilizers for supplying electronic equipment

SOURCE: IVUZ. Elektromekhanika, no. 8, 1963, 982-989

TOPIC TAGS: voltage stabilizer, semiconductor voltage stabilizer, electronic equipment, stabilitron, silicon stabilivolt

ABSTRACT: To overcome output-voltage limitations (50-70 v) of transistorized voltage stabilizer, a circuit is suggested in which a conventional low-voltage transistorized stabilizer (a) controls the input voltage of a transistorized d-c/d-c converter and (b) has a feedback link to the converter output. A number of circuits developed on the above principle are theoretically considered; some of them use composite transistors. It is claimed (no experimental data supplied) that: (1) "High d-c voltages can be stabilized by means of reliable and economical semiconductor devices"; (2) Stabilization factor and output resistance are much higher than those in conventional low-voltage stabilizers; (3) Use of a self-excited converter protects the stabilizer against short-circuits in the load network as the converter becomes inoperative in such a case. Orig. art. has:

Card 1/2

ACCESSION NR: AP4018993 S/0146/64/007/001/0024/0031

AUTHOR: Melik-Shakhnazarov, A. M.; Leytman, M. B.

TITLE: Autocompensated pulse-time voltage converter

SOURCE: IVUZ. Priborostroyeniye, v. 7, no. 1, 1964, 24-31

TOPIC TAGS: pulse time converter, analog to digital converter, autocompensated pulse time converter, voltage pulse time converter, transistorized pulse time converter, telemeter, telemetering

ABSTRACT: Conventional pulse-time converters have complicated precise voltage-generating circuits and require amplification of the primary-detector voltage. A new converter circuit (see Enclosure 1) is proposed which obviates, to a degree, the above shortcomings by using a self-compensation principle. A transistorized tensometer-bridge voltage converter, for 2 mv maximum, was built and tested. Its output characteristic was found to be linear within 0.1%.

Card 1/2

ACCESSION NR: AP4018993

A variation of 0-2 mv of the tensometer-bridge voltage caused a pulse-duration variation of from 4×10^{-6} to 15×10^{-3} sec. The output-pulse duration varied within $\pm$ 0.1% for a supply-voltage variation within $\pm$ 10%. The device is recommended for short-pulse telemeter systems and for analog-to-digital converters. The no-preamplifier feature is regarded as a great advantage of the device. Orig. art. has: 5 figures and 10 formulas.

ASSOCIATION: Azerbaydzhanskiy institut nefti i khimii im. M. Azizbekova (Azerbaidzhan Institute of Petroleum and Chemistry)

SUBMITTED: 17Jan63 DATE ACQ: 23Mar64 ENCL: 01

SUB CODE: GE NO REF SOV: 005 OTHER: 000

Card 2/2

LEYTMAN, Mikhail Borisovich, aspirant

Autocompensating frequency converter. Izv. vys. ucheb. zav.; elektromekh. 7 no.5:612-615 '64. (MIRA 17:9)

1. Azerbaydzhanskiy institut nefti i khimii.

LEYTMAN, M.B.; PAKHLAVUNI, R.K.

Pulse-length modulator for telemetering systems. Izv. vys. ucheb. zav.; nefti i gaz. 6 no.5:97-102 '63 (MIRA 17:7)

1. Azerbaydzhanskiy institut nefti i khimii imeni M. Azizbekova.

ACCESSION NR: AP4039389 S/0144/64/000/005/0612/0615

AUTHOR: Leytman, Mikhail Borisovich (Aspirant)

TITLE: Self-compensating frequency converter

SOURCE: IVUZ. Elektromekhanika, no. 5, 1964, 612-615

TOPIC TAGS: frequency converter, converter, self compensating frequency converter, frequency meter, frequency conversion

ABSTRACT: A self-compensating frequency converter, whose block diagram is shown in Fig. 1 of the Enclosure, converts frequency by virtually any factor. In this converter the factor does not depend on the gain of the preliminary amplifier or the frequency characteristics of the oscillator 4 and the frequency f_1 of the master oscillator. The input voltage with frequency f_1, which is subject to conversion, is applied to the input of frequency meter 1, whose mean output voltage u is proportional to the measured frequency. After smoothing by means of filter 2, voltage ú is applied to a comparison

Card 1/3

ACCESSION NR: AP4039389

circuit where it is compared with voltage u_k coming from the feedback circuit. The difference Δu between these two voltages is amplified by amplifier 3, whose output voltage regulates the frequency of oscillator 4. The voltage at the output of this oscillator with a frequency f_2 is the output voltage of the converter. This voltage is transmitted to the feedback circuit consisting of frequency meter 5 and filter 6. The conversion factor of the described converter is 1000. When f_1 varies 20—50 cps, it changes by not more than ±0.1% of the rated value. With a sudden variation in voltage u, the transient time for the output frequency does not exceed 3—4 msec. Orig. art. has: 2 figures and 3 formulas.

ASSOCIATION: none

SUBMITTED: 06Feb63 DATE ACQ: 19Jun64 ENCL: 01

SUB CODE: EC NO REF SOV: 007 OTHER: 000

Card 2/3

MELIK-SHAKHNAZAROV, A.M.; LEYTMAN, M.B.

Auto-compensating pulse-time voltage converter. Izv. vys. ucheb. zav.; prib. 7 no.1:24-31 '64. (MIRA 17:9)

1. Azerbaydzhanskiy institut nefti i khimii imeni Azizbekova. Rekomendovana kafedroy elektricheskikh izmereniy i vychislitel'noy tekhniki.

L 15286-66 EWT(d)
ACC NR: AP5028957 SOURCE CODE: UR/0119/64/000/009/0007/0008

AUTHOR: Leytman, M. B. (Engineer)

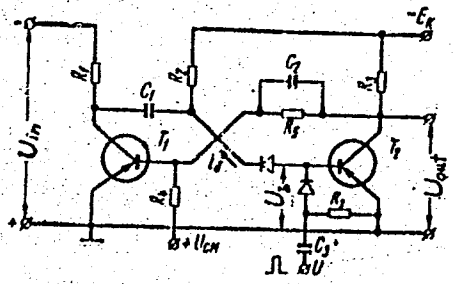
ORG: none

TITLE: Transistorized pulse-duration modulator

SOURCE: Priborostroyeniye, no. 9, 1964, 7-8

TOPIC TAGS: modulator, pulse duration modulator

ABSTRACT: A transistorized pulse-duration modulator is described which is based on a slave multivibrator circuit (see fig.). One arm (transistor T_1 and resistor R_1) is supplied by the input voltage U_{in}. Normally, T_1 is non-conducting and T_2 is conducting and saturated. Starting positive pulse U turns off T_2 and deprives the circuit of its stability. Time duration t of the unstable state (when U_{out} is negative) depends on the C_1 recharge time (from $U_{in} - U_t$ to $-U_t$). With $-U_t$ applied, T_2 becomes conducting again, and the circuit returns to normal. Hence, by varying



Principal circuit of the modulator

Card 1/2 UDC: 621.376.5:621.382.3

L 15206-65
ACC NR: AP5028957

U_{in}, it is possible to adjust time t of the output negative pulse. Formulas for calculating this type of modulator are presented. An experimental verification is claimed to have shown that: (1) The characteristic $t = f(U_{in})$ is linear; (2) A pulse-duration range of 10000 is obtainable with the input voltage between 0 and 2.6 v and a starting-pulse duration of 2 microsec; (3) An error of 3% or less occurs for temperature variation within 0 + 40C. Orig. art. has: 3 figures and 14 formulas.

SUB CODE: 09 / SUBM DATE: none

Card 2/2

ACC NR: AT6002983 SOURCE CODE: UR/0000/65/000/000/0147/0155

AUTHOR: Leytman, M. B.

ORG: none

TITLE: Magnetic-element transducers for telemetering equipment

SOURCE: Vsesoyuznoye soveshchaniye po magnitnym elementam avtomatiki i vychislitel'noy tekhniki, 9th, Yerevan, 1963. Magnitnyye tsifrovyye elementy (Magnetic digital elements); doklady soveshchaniya. Moscow, Izd-vo Nauka, 1965, 147-155

TOPIC TAGS: telemetry equipment, magnetic element, magnetic transducer

ABSTRACT: Two magnetic transducers are described. A transformer-type transducer of voltage into pulse duration (see Figure 1) is actually a trigger circuit with a single stable state and transformer feedback. A short starting pulse turns on the transistor and a feedback voltage appears in the base circuit which acts cumulatively with U_{in}. At a certain U_{in} value, its sum with the feedback voltage exceeds the bias, and the

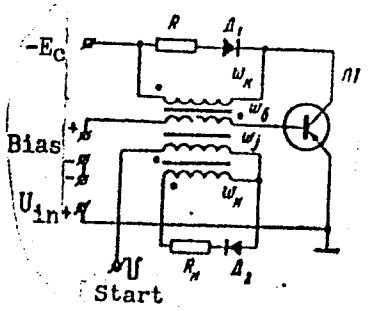


Fig. 1. Voltage-to-pulse-duration transducer

Card 1/2

L 39489-66

ACC NR: AT6002983

transistor will also be conducting after cessation of the starting pulse. Some experimental data is reported. A transformer-type transducer of frequency into (mean) voltage (see Figure 2) is actually a trigger device with a positive feedback; the relation between input frequency and output voltage is linear. The mean output voltage depends on the input frequency, saturation induction of the core, and is theoretically independent of the supply voltage. In practice, only a rough voltage stabilizer proved to be necessary. The duty factor of output d-c pulses may be made close to 1. An experimental 80-cps-maximum model exhibited an error of 0.1% with a voltage increase of 25%. The error was 0,5% with a temperature variation of 20—45C and could be reduced to 0.1% by temperature compensation. Orig. art. has: 8 figures, 22 formulas, and 1 table.

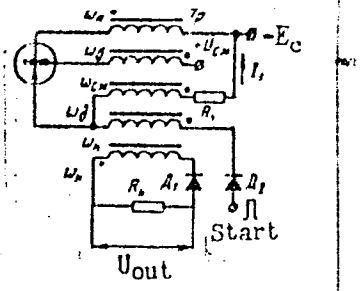


Fig. 2. Frequency-to-voltage transducer

SUB CODE: 09 / SUBM DATE: 23Apr65 / ORIG REF: 002

Card 2/2 MLP

L 37925-66 EWT(1)

ACC NR: AP6022200 SOURCE CODE: UR/0115/66/000/005/0036/0036

AUTHOR: Leytman, M. B.; Pakhlavuni, R. K.

ORG: none

TITLE: Transistorized high-voltage constant voltage stabilizer

SOURCE: Izmeritel'naya tekhnika, no. 5, 1966, 36

TOPIC TAGS: voltage stabilizer, transistorized circuit

ABSTRACT: The new device comprises a low-voltage dc stabilizer, a transistorized dc-ac step-up inverter, a h-v rectifier, and a feedback circuit from the rectifier to the l-v stabilizer. The stabilizer has a compensation circuit with a d-c amplifier. A principal circuit of a 120-v 200-w stabilizer is shown; its supply voltage, 220 v ± 10%; stabilization factor with respect to the supply voltage, 1000; internal resistance, 0.15 ohm. Principal components are specified, and their operation explained. The stabilizer has automatic protection from inverter failure and overloads. Orig. art. has: 1 figure. [03]

SUB CODE: 09 / SUBM DATE: none / ORIG REF: 003

Card 1/1 mlp UDC: 621.316.722.1:621.382.3

89921
S/191/61/000/002/011/012
B124/B204

15.8500 3209

AUTHORS: Arkhipova, Z. V., Semenova, A. S., Paramonkov, Ye. Ya., Nalivayko, Ye. I., Leytman, M. I.

TITLE: Determination of the solubility of polyethylene in hydrocarbons and of the dynamic viscosity of the solutions obtained

PERIODICAL: Plasticheskiye massy, no. 2, 1961, 61-65

TEXT: It was the purpose of the present paper to investigate the solubility of polyethylene in various solvents, the dependence of the solution temperature of polyethylene on its molecular weight and the concentration of the solution, as well as to measure the dynamic viscosity of the solutions obtained ad their filtering velocity. The solubility of polyethylene was determined from the turbidity of a solution of given concentration during observation in transmitted light by means of the device, developed by V. N. Dyn'ko, whose schematical drawing is shown in Fig. 1. The polymer weighed portion is conveyed into the steel container 1 and, after the

Card 1/3

Determination of the solubility...

addition of a measured quantity of solvent, the lid, which is sealed by fluoroplast, is closed. The tightness of the apparatus was checked with the gas valve closed by increasing the nitrogen pressure to 7-8 atmospheres excess pressure. From an ultrathermostat, the heat-transmitting medium is conveyed into jacket 9, the valve is partly opened, and the solvent and the polymer are mixed by means of bubbling-through N_2. The temperature was

measured by means of a thermocouple, which was connected with a portable potentiometer; the measuring accuracy was ±0.5°C. The light from lamp 10 passed quartz windows 7 and incided upon the mirror 8 from which it was reflected. The solution obtained was 20-25°C above solution temperature; when the solution was cooled, a distinct turbidity occurred, which continued to increase with dropping temperature. The temperature at which the first slight turbidity occurred was taken as solution temperature. The dynamic viscosity of the polymer solutions was measured by means of the Heller viscosimeter from formula $\eta = \tau(d_s - d_{sol}).K$, where η is the viscosity, τ the time of the fall of the sphere, d_s the density of the sphere, d_{sol} the

Card 2/3

density of the solution, and K the constant of the sphere. The measuring error is 3%. The density of polyethylene was determined in the laboratory of B. I. Sazhin. The solution temperatures of polyethylene, obtained by means of CrO_3-catalysts, in various solvents are given in Table 1. With an

increase of temperature, the solution time of polyethylene in hydrocarbons decreases, and when polyethylene concentration in the solution is changed, also the temperature of the quantitative dissolution changes (Table 2). With increasing molecular weight of polyethylene, its solution temperature increases linearly with intrinsic viscosity. The temperture dependence of the concentration of low-molecular polyethylene which remains in solution when cooled, is shown by Fig. 4, the dependence of the dynamic viscosity of the polyethylene solutions in synthol on the intrinsic viscosity is shown by Fig. 5. Professor Ye. V. Kuvshinskiy is thanked. There are 9 figures, 2 tables and 3 references: 2 Soviet-bloc and 1 non-Soviet-bloc.

LEYTMAN, M.Z.; ROGOVA, L.I.

Research on effective methods for treating children with a chronic form of dysentery and unstable stools. Vop.kraev.pat. no.4:7-12 '54. (MLRA 9:12)
(DYSENTERY)
(INTESTINES—BACTERIOLOGY)
(QUINACRINE)

BOLDYREV, T.Ye.; ALEKSANYAN, A.B; SHATROV, I.I.; KORSHAKOVA, A.S.; LEYTMAN, M.Z.; FROLOV, V.I.; KOVALEVA, N.I.

Studies on the effectiveness of an alcoholic dysentery vaccine based upon extensive epidemiological observations. Zhur.mikrobiol.epid. i immun. 30 no.7:3-7 Jl '59. (MIRA 12:11)

1. Iz Instituta epidemiologii i mikrobiologii imeni Gamalei AMN SSSR.
(DYSENTERY, BACILLARY - immunology)
(VACCINES)

LEYTMAN, M.Z., kand.meditsinskikh nauk

Clinical and epidemiological peculiarities of coccidiosis in combination with chronic dysentery in children. Med. zhur. Uzb. no.8: 37-40 Ag '60. (MIRA 13:9)

1. Iz Tashkentskogo nauchno-issledovatel'skogo instituta vaktsin i syvorotok (direktor - A.B. Inogamov).
(UZBEKISTAN--COCCIDIOSIS) (DYSENTERY)

LEYTMAN, M.Z.; SLAVINA, A.M.; ZHDANOVA, L.D.; ABDUSAMATOV, M.A.

Effectiveness of antibiotics in inactivating experimental bacterial carriage in rabbits. Zhur.mikrobiol., epid. i immun. 32 no.10:57-58 O '61. (MIRA 14:10)

1. Iz Tashkentskogo instituta vaktsin i syvorotok.
(ANTIBIOTICS) (BACTERIA, PATHOGENIC)

KHEYFETS, L.B.; KHAZANOV, M.I.; LEYTMAN, M.Z.; KUZ'MINOVA, M.L.; SLAVINA, Kh.N.; VASIL'YEVA, A.V.; MILOVANOVA, A.S.

Typhoid-paratyphoid-tetanus chemically sorbed vaccine. (Experimental study, reactogenic properties, epidemiological effectiveness). Zhur. mikrobiol., epid. i immun. 32 no.9:18-25 S '61. (MIRA 15:2)

1. Iz Moskovskogo instituta vaktsin i syvorotok imeni Mechnikova, Tashkentskogo instituta vaktsin i syvorotok, Turkmenskogo instituta epidemiologii i gigiyeny i Kazakhskogo instituta epidemiologii, mikrobiologii i gigiyeny.

(TYPHOID FEVER) (PARATYPHOID FEVER)
(TETANUS) (VACCINES)

LEYTMAN, M.Z., kand.med.nauk, starshiy nauchnyy sotrudnik; DOLINSKAYA, K.N., dotsent, kand.med.nauk

Effect of sensibilization on the morphology of amebiasis in experimental animals. Trudy TashNIIVS 6:217-226 '61. (MIRA 15:11)

1. Tashkentskiy institut vaktsin i syvorotok (for Leytman).
2. Kafedra patologicheskoy anatomii Tashkentskogo gosudarstvennogo meditsinskogo instituta (for Dolinskaya).
(AMEBIASIS) (DYSENTERY)

LEYTMAN, M.Z.; KUZ'MINOVA, M.L.; SLAVINA, Kh.M.

Study of the immunological effectiveness of the typhoid component of polyvaccine from the Scientific Research and Experimental Serological Institute. Trudy TashNIIVS 6:245-250 '61.
(MIRA 15:11)

(TYPHOID FEVER--PREVENTIVE INOCULATION)

LEYTMAN, M.Z.; SLAVINA, Kh.M.; ZHDANOVA, L.D.; PLETNEVA, O.G.

Data on early laboratory diagnosis of abdominal typhus under polyclinical conditions. Nauch.trudy uch.i prak.vrach.Uzb. no.3:134-139 '62. (MIRA 16:2)
(UZBEKISTAN—TYPHOID FEVER)

LEYTMAN, M.Z.; ALFEROVA, V.B.; KUZ'MINOVA, M.L.; SLAVINA, Kh.M.; ZHDANOVA, L.D.; MOKEYEVA, A.D.; BOGACHEVA, R.I.; GINZBURG, G.M.; GOTGIL'F, M.M.; SMIRNOVA, T.T.

Study of the effectiveness of subcutaneous immunization against dysentery with Chernokhvostov's alcohol vaccine. Trudy Tash. NIIVS 5:59-71'62. (MIRA 16:10)
(DYSENTERY—PREVENTIVE INOCULATION)

LEYTMAN, M.Z.

Clinical and epidemiological characteristics of amebiasis and amebo-bacterial dysentery. Trudy Tash. NIIVS 5:105-117'62. (MIRA 16:10)

(AMEBIASIS

KHEYFETS, L.B.; LEYTMAN, M.Z.; KUZ'MINOVA, M.L.; SALMIN, L.V.; SLAVINA, A.M.; ZHDANOVA, L.D.; PLETNEVA, O.G.; KOYENMAN, L.I.; GINZBURG, G.M.; VARSANOVA, Ye.Ya.; MEL'NIK, Ye.Yu.

Studies on the epidemiological effectiveness of alcohol corpuscular and chemical sorbed typhoid and paratyphoid fever vaccines. Zhur. mikrobiol., epid. i immun. 33 no.7: 53-59 Jl '62. (MIRA 17:1)

1. Iz Moskovskogo instituta vaktsin i syvorotok imeni Mechnikova i Tashkentskogo instituta vaktsin i syvorotok.

KHEYFETS, L.B.; SALMIN, L.V.; LEYTMAN, M.Z.; KUZ'MINOVA, M.L.; VASIL'YEVA, A.V.; GAL'PERIN, I.P.; SLAVINA, A.M.; ZHDANOVA, L.D. PLETNEVA, O.G.; VARSANOVA, Ye.Ya.; GINZBURG, G.M.; GLYAZER, N.G.; MEL'NIK, Ye.Yu.

Comparative evaluation of typhoid fever vaccine prepared by various methods, materials from an epidemiological experiment in 1961. Zhur. mikrobiol., epid. i imm. 41 no. 2:70-76 F '64. (MIRA 17:9)

1. Moskovskiy institut vaktsin i syvorotok imeni Mechnikova, Tashkentskiy institut vaktsin i syvorotok i Ashkhabadskiy institut epidemiologii, mikrobiologii i gigiyeny.

KHEIFETS, L.B.; SAIMIN, L.V.; LEYTMAN, M.Z.; KUZ'MINOVA, M.L.; VASIL'YEVA, A.V.; SLAVINA, A.M.; LEVINA, L.A.; Prinimali uchastiye: PAVLOVA, Ye.A.; ANTONOVA, A.A.; PLETNEVA, O.G.; ABDUSAMATOV, M.A.; GAL'PERIN, I.P.; NEMTSOVA, V.K.; ADUYEVA, N.I.

Comparative evaluation of the reactogenicity and effectiveness of vaccines intended for the prevention of typhoid fever and paratyphoid fever B; basic materials of the epidemiological experiment in 1962. Zhur. mikrobiol., epid. i immun. 42 no.7:58-64 Jl '65. (MIRA 18:11)

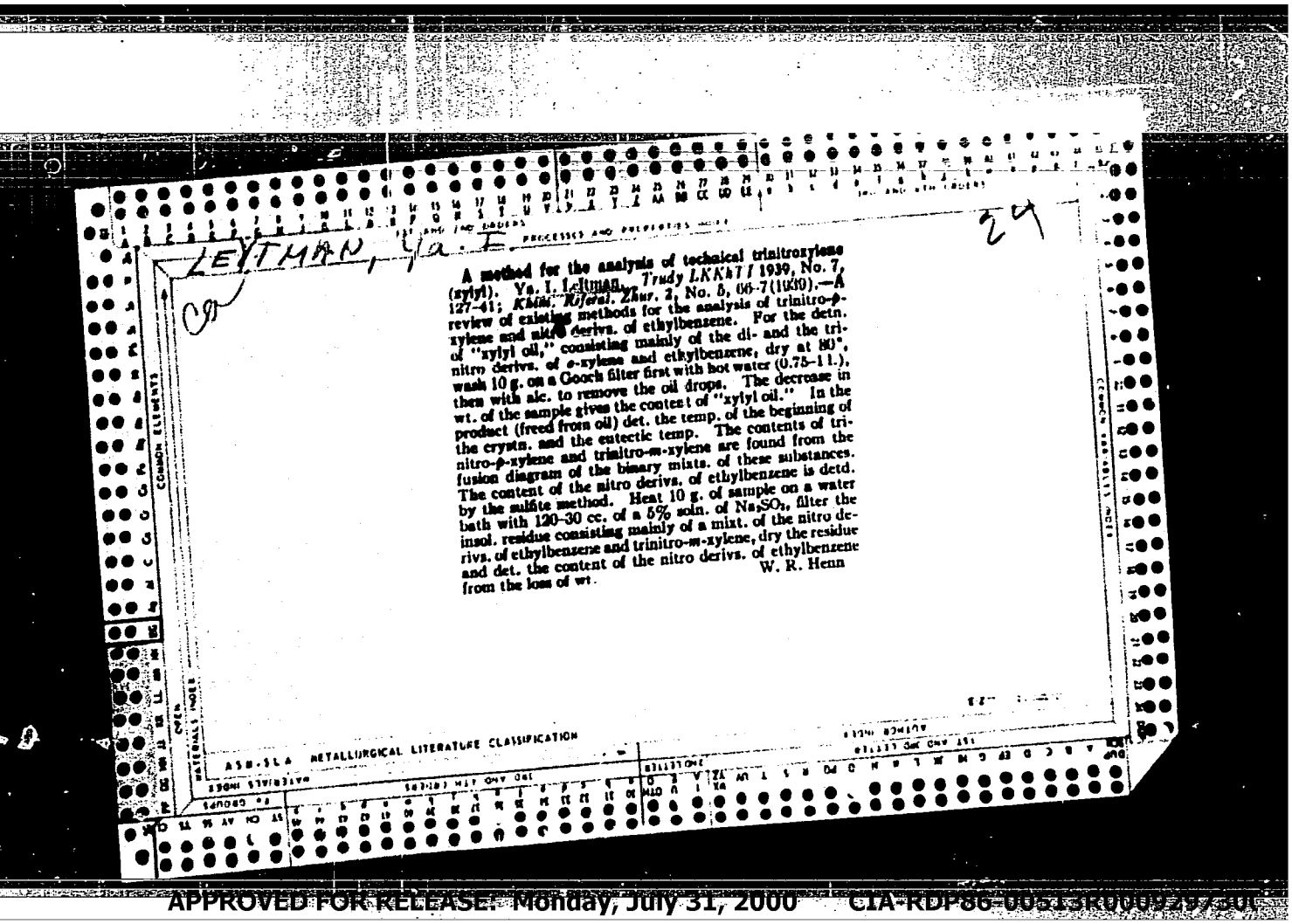
1. Moskovskiy institut vaktsin i syvorotok imeni Mechnikova (for Pavlova, Antonova). 2. Tashkentskiy institut vaktsin i syvorotok (for Pletneva, Abdusamatov). 3. Ashkhabadskiy institut epidemiologii, mikrobiologii i gigiyeny (for Gal'perin, Nemtsova). 4. Gor'kovskiy institut epidemiologii, mikrobiologii i gigiyeny (for Aduyeva).

MINKH, A.A., professor; IVANOV, V.S., ordinator; LEYTMAN, S.S., assistent.

Dental caries in confectionery workers. Stomatologiia, no.3:23-28 My-Je '54. (MLRA 7:6)

1. Iz kafedry terapevticheskoy stomatologii (zav. prof. Ye.Ye.Platonov) i kafedry gigieny (zav. prof. A.A.Minkh) Moskovskogo meditsinskogo stomatologicheskogo instituta (dir. dotsent G.N.Beletskiy)

(DENTAL CARIES, epidemiology,
*in confectionery workers)



LEYTMAN, Ya. I.

29

A method for the analysis of technical trinitroxylene (xylyl). Ya. I. Leitman. *Trudy LKKhTI* 1939, No. 7, 127–41; *Khim. Referat. Zhur.* 2, No. 5, 66–7 (1940).—A review of existing methods for the analysis of trinitro-*p*-xylene and nitro derivs. of ethylbenzene. For the detn. of "xylyl oil," consisting mainly of the di- and the tri-nitro derivs. of *o*-xylene and ethylbenzene, dry at 80°, wash 10 g. on a Gooch filter first with hot water (0.75–1 l.), then with alc. to remove the oil drops. The decrease in wt. of the sample gives the content of "xylyl oil." In the product (freed from oil) det. the temp. of the beginning of the crystn. and the eutectic temp. The contents of trinitro-*p*-xylene and trinitro-*m*-xylene are found from the fusion diagram of the binary mixts. of these substances. The content of the nitro derivs. of ethylbenzene is detd. by the sulfite method. Heat 10 g. of sample on a water bath with 120–30 cc. of a 5% soln. of Na_2SO_3, filter the insol. residue consisting mainly of a mixt. of the nitro derivs. of ethylbenzene and trinitro-*m*-xylene, dry the residue and det. the content of the nitro derivs. of ethylbenzene from the loss of wt.

W. R. Henn

AUTHORS: Leytman, Ya. I., Pevzner, M. S. SOV/75-13-4-21/29

TITLE: The Determination of Isomeric Mixtures of Xylenes and Ethyl Benzene (Opredeleniye smesey izomerov ksilola i etilbenzola)

PERIODICAL: Zhurnal analiticheskoy khimii, 1958, Vol. 13, Nr 4, pp. 487-491 (USSR)

ABSTRACT: The chemical methods for the determination of the content of various isomers in technical xylene are widely spread as they have a high accuracy and do not require complicated apparatus. All those methods (Refs 1-13) have, however, certain disadvantages. The method described in the present paper makes possible the quantitative determination of all 3 isomeric xylenes as well as of ethyl benzene. It is based on the nitration of the mixture and the determination according to an earlier described method (Ref 14) of the trinitro compounds obtained. The o-xylene which boils by 5,3° higher than the next lower boiling isomer m-xylene (Ref 15) was earlier separated quantitatively by fractional distillation and then was determined. The residual mixture of the other 3 isomers was nitrated in 2 stages: the first stage lead to the dinitro compounds, whereas the second stage supplied the trinitro products. The nitrated xylenes

Card 1/3

The Determination of Isomeric Mixtures of Xylenes and Ethyl Benzene

were weighed as a sum. The nitro derivatives of ethyl benzene which are in alcohol by far better soluble than the trinitro derivatives of the m- and p-xylene (Ref 16) were separated by repeated washing of the mixture with alcohol. Then it was weighed again. The ratio between the 2 residual components was determined according to the solidification temperature and the corresponding fusion diagram (Ref 14). In the alcohol extract there are contained, besides the nitro derivatives of ethyl benzene, also the not completely nitrated derivatives of m- and p-xylene. On the conditions of the nitration mentioned in this paper the amount is about 2% of the amount of trinitro-m-xylene and about 10% of the amount of trinitro-p-xylene. These values were taken into account in the determination of the trinitro ethyl benzene. Based on the results of the analyses the authors determined empiric coefficients by means of which the actual content of the 3 isomers in the mixture may be calculated from the gravimetric results obtained if the conditions mentioned for the nitration were complied with. Some samples treated this way were also spectroscopically analyzed. (This work was carried out by A. N. Aleksandrov at the Physical Laboratory of the Scientific Research Institute of the Ministry of Petroleum

The Determination of Isomeric Mixtures of Xylenes and Ethyl Benzene

Industry in Leningrad (v fizicheskoy laboratorii Leningradskogo n. -i. instituta Ministerstva neftyanoy promyshlennosti)). Either method supplied well reproducible results. Also a method for the determination of the content of isomeric xylene in the mixtures containing a great part of ethyl benzene (>85%) was elaborated. Either method of determination is described in detail. N. Ye. Khromova-Borisova and N. G. Borzova participated in the work. There are 1 figure, 4 tables, and 23 references, 10 of which are Soviet.

ASSOCIATION: Leningradskiy tekhnologicheskiy institut im. Lensoveta (Leningrad Technological Institute imeni Lensovet)

SUBMITTED: May 11, 1957

1. Xylenes--Determination 2. Ethyl benzenes--Determination
3. Xylenes--Isomerism 4. Ethyl benzenes--Isomerism

5(4) SOV/79-29-8-49/81

AUTHORS: Leytman, Ya. I., Pevzner, M. S.

TITLE: Thermal Effect of the Sulfonation of Xylenes and Ethylbenzene

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 8, pp 2674-2676 (USSR)

ABSTRACT: There are data available in publications on the problem of the thermal effect of the sulfonation reaction of aromatic compounds with respect to naphthalene (Ref 1) and resorcinol (Ref 2). In the present paper, the authors investigated the thermal effect of the sulfonation of all isomers of xylene and ethylbenzene. For this purpose the isomers of xylene and ethylbenzene with the constants given in table 1 were used. Sulfonation was carried out with 96.5% sulfuric acid. The reaction proceeds sufficiently quickly, and the evolution of heat takes 8-10 min. The calorimeter used for the determination of the thermal effect (Fig) is described in detail. The thermal effect of the reaction ΔH was calculated according to the formula

$$\Delta H = \frac{K.\Delta t^{o}.106 \text{ kcal/g-mole}}{g}$$

, where K= heat value of the system in kcal/degree, Δt^{o}= temperature increase in the calorimeter (corrected), 106 = molecular weight of the xylene isomers and ethyl benzene, g= weight of the hydrocarbon in grams. Table 2

Card 1/2

presents the final results of the experiments. Since in the experiments sulfuric acid was used in considerable excess (300-3000 fold), the variation of its concentration was extremely small during the experiment. Consequently, the thermal effect is the differential effect for a given concentration of sulfuric acid. The thermal effect of the sulfonation reaction as such is determined by deducing the differential heat of the dilution of the sulfuric acid from the total thermal effect obtained experimentally (Ref 4). The data indicate that the thermal effect of the sulfonation reaction of xylene isomers and ethylbenzene is expressed in 34-42% of the total thermal effect of the sulfonation process. The values obtained are: for m-xylene 3.9, n-xylene 4.1, o-xylene 5.5, and ethylbenzene 5.1 kcal/g-mole, respectively. There are 1 figure, 2 tables, and 4 references, 3 of which are Soviet.

ASSOCIATION: Leningradskiy tekhnologicheskiy institut imeni Lensoveta (Leningrad Technological Institute imeni Lensovet)

SUBMITTED: July 7, 1958

LEYTMAN, Ya.I.; SOROKIN, V.I.; TSELINSKIY, I.V.

Kinetics of the sulfonation of 1,3,5-trimethylbenzene (mesitylene) and 1,2,4-trimethylbenzene (pseudocumene), and hydrolysis of their sulfonic acids. Zhur. prikl. khim. 33 no.8:1875-1882 Ag '60. (MIRA 13:9)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.
(Mesitylene) (Benzene) (Sulfonation)

LEYTMAN, Ya.I.; DIYAROV, I.N.

Kinetics of the sulfonation of ethyltoluene isomers by sulfuric acid. Zhur. prikl. khim. 34 no.2:376-382 F '61. (MIRA 14:2)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.
(Toluene) (Sulfonation)

LEYTMAN, Ya.I.; DIYAROV, I.N.

Separation of a mixture of ethyltoluenes into individual isomers. Zhur.prikl.khim. 34 no.8:1868-1874 Ag '61. (MIRA 14:8)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.
(Toluene)

LEYTMAN, Ya.I.; DIYAROV, I.N.

Kinetics of the sulfonation of hemimillitene(1,2,3-trimethylbenzene) and of the hydrolysis of its sulfonic acid. Zhur.prikl. khim. 34 no.9:1920-1926 S '61. (MIRA 14:9)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.
(Benzene) (Benzenesulfonic acid)

LEYTMAN, Ya.I.; DIYAROV, I.N.; PEVZNER, M.S.

Isomeric composition of C_9 aromatic hydrocarbons of the fraction of 150 - 170°C of catalytic reforming products. Neftekhimiia 2 no.2:242-247 Mr-Ap '62. (MIRA 15:6)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.
(Hydrocarbons--Spectra) (Petroleum--Refining)

LEYTMAN, Ya.I.; PEVZNER, M.S.

Development of the methods of preparing diethyltoluamide, a repellent. Zhur.prikl.khim. 36 no.3:632-639 My '63. (MIRA 16:5)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.
(Toluamide)